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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/521,072	03/07/2000	Chang Samuel Hsu	LAW908	9155
27810 7590 04/30/2007 ExxonMobil Research & Engineering Company P.O. Box 900 1545 Route 22 East Annandale, NJ 08801-0900			EXAMINER VANORE, DAVID A	
			ART UNIT 2881	PAPER NUMBER
			MAIL DATE 04/30/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

09/521,072

Applicant(s)

HSU ET AL.

Examiner

David A Vanore

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(e). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al.

Johnson et al. teaches a filament assembly for use in a field emission mass spectrometer having an adjustable emitter current (Fig. 1 Item 14, 16 and 17 Items illustrate control, regulating, and filament means), and a emitter built on a small scale as Johnson et al. teaches a small scale filament and Fig. 1 Illustrates a hole on the scale of the filament (Col. 4 Line 1-24)

In regards to claim 2, while Johnson et al. fails to teach fragmenting isoparaffin molecular ion rates at below fifty percent, Johnson et al. teaches an adjustable emission current, upon which the fragmentation rate of the isoparaffin molecules are dependent. It would have been obvious to one having ordinary skill in the art at the time the invention was made adjust the emission current to maintain molecular structures at a selectable rate since such a method is conventional in the art.

In regards to claims 3 and 4, Johnson et al. fails to teach an emitter current less than 20 mA and an emitter diameter ranging from 5 to 50 microns. Johnson et al. teaches an adjustable emitter current and a small scale emitter assembly. It would

Art Unit: 2881

have been obvious to one having ordinary skill in the art at the time the invention was made to set the emitter current to any selectable value or to choose an emitter aperture size of 5-50 microns because the selecting of an emitter current value and the use of small scale emitter apertures is conventional in the art.

In regards to claims 5 and 6, Johnson et al. teaches all limitations as applied above, but fails to teach isoparaffins having between 10 and 50 carbon atoms. It would have been obvious to one having ordinary skill in the art to use any of a plurality of species in a mass spectrometer because the selecting of a species for analysis in a mass spectrometer is conventional in the art.

In regards to claim 7, Johnson et al. teaches all limitations as applied above but fails to teach the determination of carbon number distributions by measuring molecular ion distributions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to measure molecular ion distributions to determine carbon number distributions because the molecular ions in the particular case comprise molecules having carbon. The act of measuring the distribution of a particular species is inherent in the use of a mass spectrometer apparatus, hence the associated method would have been obvious to one having ordinary skill in the art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent No. 4808820 Blau and US Patent No. 5644129 Hsu et al. Both teach the relative state of the prior art.

Art Unit: 2881

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Vanore whose telephone number is 703-306-0246. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dzierzynski can be reached on 703-308-4782. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-9797.

dav  
September 28, 2001



KIET T. NGUYEN  
PRIMARY EXAMINER